(19) World Intellectual Property Organization International Bureau



(43) International Publication Date 22 February 2007 (22.02.2007)

(10) International Publication Number WO 2007/022121 A3

- (51) International Patent Classification: *A01N 37/00* (2006.01) *A61K 31/21* (2006.01)
- (21) International Application Number:

PCT/US2006/031722

- (22) International Filing Date: 14 August 2006 (14.08.2006)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data:

60/707,896 12 August 2005 (12.08.2005) US 11/502,974 11 August 2006 (11.08.2006) US

- (71) Applicant (for all designated States except US): ATK THIOKOL PROPULSION INC. [US/US] (US).
- (72) Inventor: BEDNARSKI, Mark, D. (deceased).
- (72) Inventors; and
- (75) Inventors/Applicants (for US only): KNOX, Susan [US/US]; 731 San Rafael Place, Stanford, California 94305 (US). CANNIZZO, Louis [US/US]; 1752 Victoria Court, Ogden, Utah 84403 (US). WARNER, Kirsten [US/US]; 496 West 3295 North, Ogden, Utah 84414 (US). WARDLE, Robert [US/US]; 1630 North 1770 East, Ogden, Utah 84321 (US). VELARDE, Stephen [US/US]; 1740 North 400 West, North Odgen, Utah 84414 (US). NING, Shoucheng [US/US]; 642 College Avenue, Palo Alto, California 94306 (US).

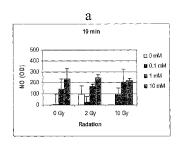
- (74) Agents: TRECARTIN, Richard, F. et al.; DORSEY & WHITNEY LLP, 555 California Street, Suite 1000, San Francisco, California 94104 (US).
- (81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LV, LY, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.
- (84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

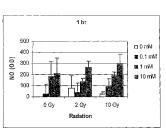
Published:

- with international search report
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments

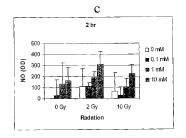
[Continued on next page]

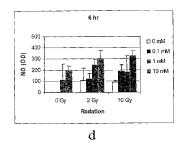
(54) Title: O-NITRO COMPOUNDS, PHARMACEUTICAL COMPOSITONS THEREOF AND USES THEREOF





b





(57) Abstract: The present invention provides O-nitro compound, pharmaceutical compositions of O-nitro compounds and methods of using O-nitro compounds and/or pharmaceutical compositions thereof to treat or prevent diseases or disorders characterized by abnormal cell proliferation, such as cancer, inflammation, cardiovascular disease and autoimmune disease.

(88) Date of publication of the international search report:

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US06/31722

A. CLASSIFICATION OF SUBJECT MATTER IPC: A01N 37/00(2006.01);A61K 31/21(2006.01)			
USPC: 514/509 According to International Patent Classification (IPC) or to both national classification and IPC			
B. FIELDS SEARCHED			
Minimum documentation searched (classification system followed by classification symbols) U.S.: 514/509			
Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched			
Electronic data base consulted during the international search (name of data base and, where practicable, search terms used) USPGPUB, USPAT, USOCR, EPO, JPO, DERWENT, MEDLINE, MARPAT			
C. DOCUMENTS CONSIDERED TO BE RELEVANT			
Category *	Citation of document, with indication, where a	ppropriate, of the relevant passages	Relevant to claim No.
X	Naimi et al. J. Med. Chem. 2003, 46, 995-1004, see	Abstract	1, 13-15
Y			1-12
X	Huguenin et al. Cancer Letters, 218, 2005, 163-170, see abstract, p 165, 169		1-3, 13-16
Y			1-12
X 02004/113281 (CHOI et al) 29 Dec 2004 (29.12.2004), see abstract, p 47, 51 and examples			1, 3, 13-15, 18
X \(\infty\)\(\infty\)\(\infty\)\(\text{2004/098538}\) (EARL et al) 18 Nov 2004 (18.11.2004), see Abstract, p 28, and examples			16-18
x	US 2004/0024057 (EARL et al) 5 Feb 2004 (5.02.2004), see Abstract, p 13, 16-19 and examples		16
Further documents are listed in the continuation of Box C. See patent family annex.			
* Special categories of cited documents: 'A' document defining the general state of the art which is not considered to be of		"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention	
particular relevance "E" earlier application or patent published on or after the international filing date		"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step	
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)		"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination	
"O" documen	referring to an oral disclosure, use, exhibition or other means	being obvious to a person skilled in the	
"P" document published prior to the international filing date but later than the priority date claimed		"&" document member of the same patent family	
		Date of mailing of the international search report	
00 7 kptn 2007 (00.0 1.2007)			
Name and mailing address of the ISA/US Mail Stop PCT, Attn: ISA/US Commissioner for Patents P.O. Box 1450 Alexandria, Virginia 22313-1450		Undamaheswafi Ramachandran Telephone No. 571-272/0700	
Facsimile No. (571) 273-3201			

Form PCT/ISA/210 (second sheet) (April 2005)